

SPECIFICATION

TITLE: QUICK RELEASE STEERING WHEEL SYSTEM AND METHOD

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RELATED APPLICATIONS

[01] This application claims the benefit of Provisional Application Serial No.

60/404,086, filed August 16, 2002, and hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[02] The present invention is drawn to modifications to allow the use of available pinless quick release hubs for three-bolt steering wheels with more exotic 6-bolt and 9-bolt steering wheels, such as those available from Moto-Lita®.

[03] In another embodiment, the present invention is drawn to providing a cosmetically pleasing pinless quick release for use with the OEM (Original Equipment Manufacturer) steering wheels of exotic cars such as the original AC & Shelby Cobra and replicas thereof.

[04] The Cobra's OEM Moto-Lita steering wheel used a special Moto-Lita boss and was attached to an MGB splined steering shaft. To collectors and replica owners, the look of the wood trim steering wheel and its center cap are very important. However, there are numerous reasons why an owner of such a car would desire a quick release steering wheel.

[05] For example, many racetracks and racing organizations require quick release steering wheels for safety purposes. A quick release wheel would also allow easy replacement of the wood trim wheel with a more suitable racing wheel when on the

track.

- [06] The desirability and value of Cobras and their Moto-Lita steering wheels also make them the targets of thieves, especially since they are open cars that cannot be securely locked when outside of a garage. A removable wheel would help prevent steering wheel theft and drive-away theft of the automobile. And finally, a quick release wheel would be very convenient when performing work on the car to allow easier access to the dashboard, gauges, pedals, wiring, etc.
- [07] The problem with adding a quick release to such an exotic car is that most steering wheel quick releases are made for racing: they assume the use of a three-bolt steering wheel and are not designed with cosmetic considerations such that they tend to be cosmetically unacceptable to exotic car owners. Although a special, cosmetically acceptable quick release could be manufactured, it would be prohibitively expensive and economically impractical. The more practical solution, an adapter plate to allow use of the OEM Moto-Lita steering wheel, is still unacceptable since the steering shaft would be exposed and the center cap with the Cobra or AC logo could no longer be used.

BRIEF SUMMARY OF THE INVENTION

- [08] It is therefore an object of the present invention to provide a cosmetically pleasing quick release mechanism for use with the OEM steering wheels of exotic cars such as the original AC & Shelby Cobra and replicas thereof.
- [09] It is another object of the present invention to provide a quick release wheel for

exotic cars for theft deterrence.

[10] It is another object of the present invention to provide a quick release wheel for exotic cars for to comply with racing safety requirements.

[11] It is a further object of the invention to allow convenient switching of a steering wheel on an exotic car from a cosmetically pleasing OEM-type steering wheel to a racing-type wheel and vice versa.

[12] It is a final object of the invention to provide a quick release steering wheel to allow easier access to the dashboard and wheel well area during repairs and maintenance.

BRIEF DESCRIPTION OF THE DRAWINGS

[13] **Figure 1** illustrates a preferred embodiment of the present invention;

[14] **Figures 2A-2D** illustrate the billet hub adapter of the present invention;

[15] **Figures 3A-3D** illustrate a preferred pinless quick release used with the present invention;

[16] **Figure 4A** illustrates the machined locknut of the present invention; and

[17] **Figure 4B** illustrates the billet hub adapter positioned over the pinless quick release.

DETAILED DESCRIPTION OF THE INVENTION

[18] Although disclosed with reference to an OEM Cobra steering wheel, the present

invention has applicability to other automobiles with exotic steering wheels and center caps.

[19] As is seen in **figure 1**, the major components of the present invention provide a cosmetically attractive steering wheel quick release assembly **10**. In its preferred embodiment the assembly include a substantially cylindrical billet hub adapter **12**, shown as a six-bolt Moto-Lita steering wheel adapter, a pinless quick release, shown with only the release flange **14** visible, and a "beauty ring" **16** piece of trim that is used to hide the steering shaft and integrate the assembly into the steering column/dashboard.

[20] The billet hub adapter **12** is preferably formed of machined aluminum and can be left bare or anodized any preferred color (e.g., black). The beauty ring **16** is preferably machined from black Delrin® plastic (acetal resin) and can include set screws (not shown) to hold it in place.

[21] As shown in **figure 1** and **figures 2A-2B**, the top of the billet hub adapter **12** includes a central recess **18** to allow continued use of the OEM center cap. Within the recess are three through-holes **22** for the bolts used to secure the billet hub adapter **12** to a generally available three-bolt quick release mechanism. In a preferred embodiment, the holes **22** are counter-sunk for machine head bolts.

[22] The top of the billet hub adapter **12** further includes tapped holes in the appropriate pattern for attaching the OEM steering wheel using bolts **24**. A six-bolt Moto-Lita pattern is shown, although other patterns are possible. For example, the top of the billet hub adapter **12** could also be flared sufficiently to provide for a nine-

bolt pattern (also used by Moto-Lita).

[23] The bottom of the billet hub adapter **12** is illustrated in **figures 2C-2D** and includes a central recess **32** sized to cover a top portion of the quick release. A beveled bottom edge **35** on the billet hub adapter **12** allows more clearance for accessing the flange of the quick release. The through-holes **22** extend into this recess **32** to allow secure attachment of the billet hub adapter **12** to the quick release. As shown in **figure 2C**, the through-holes **22** are positioned to match up with the threaded holes **38** in the top of the quick release **30** (shown in **figures 3C, 3D, and 4A**).

[24] **Figures 3A-3D** illustrate the quick release mechanism **30** used in the present invention. In a preferred embodiment for Cobras, the quick release mechanism is a pinless unit available from Speedway Motors, Inc. of Lincoln Nebraska with a splined sleeve for attachment to the splined MGB steering shaft used in Cobras. As shown in **figures 3A-3B**, the bottom of the quick release mechanism **30** has a splined hole **34** for engaging the splined sleeve **36**. The interior of the sleeve **36** is splined to engage the steering shaft and the exterior of the sleeve **36** is splined to engage the splined hole **34** in the quick release. A central groove (not shown) is formed about the circumference of the sleeve **36** to engage ball bearings that extend from the splined hole **34**. Pulling on the release flange **14** releases the ball bearings to allow the release of the quick release mechanism **30** (and thus the steering wheel) from the splined sleeve **36**.

[25] However, two modifications need to be made. First, the splined sleeve **36** should

be shortened sufficiently to allow space for a lock nut **48** to fit within the interior of the quick release, and the nut **48**, having an original outer diameter of 1 1/4", needs to be machined or replaced with one having a sufficiently small diameter, such as 7/8", to fit within the splined hole **34**, as illustrated in **figure 4A**. This allows the original MGB steering shaft to remain unchanged to allow the steering to be returned to stock condition.

[26] The top of the quick release mechanism **30**, as shown in **figures 3C-3D**, includes the three threaded holes **38** that are usually used to attach a three-bolt steering wheel, but in the present invention are used to attach the billet hub adapter **12**. As shown in **figure 4B**, the billet hub adapter **12** covers a significant portion of the top of the quick release, leaving sufficient room for the operation of the release flange **14** of the quick release.

[27] Although disclosed above with respect to a pinless quick release since it is the least intrusive design from a cosmetic viewpoint, one of ordinary skill in the art will understand that the invention is not so limited, and could use pinned or push-button release mechanisms as well with minor modification. Additionally, although disclosed with respect to a Cobra with a Moto-Lita/MGB steering set-up, the present invention is not so limited and one of ordinary skill in the art will recognize that it will have application to other similar set-ups, such as a Shelby Mustang with a Moto-Lita/Ford® set-up, Jaguar® (or any of a number of other British sports cars) with a Moto-Lita wheel, or a Ferarri® with a Nardi® wheel.

[28] In the manner described above, a quick release can be provided to the steering

wheel of an exotic automobile without any significant degradation of the cosmetic aspect of the automobile and its OEM steering wheel. The quick release wheel can add security and racing safety to the automobile without decreasing its appeal or value. Additionally, a second steering wheel can be outfitted with an identical quick release mechanism to allow simple and quick switching of steering wheels, such as for use on a racetrack.